

Oceanography and Ecology of the Aleutian Archipelago

We propose to offer a special symposium on the oceanography and ecology of the Aleutian Archipelago. This region is relatively poorly known, but is important as the gateway through which nutrients and heat pass from the North Pacific Ocean to the Bering Sea. The region is also important in its own right, as the site of fisheries for Pacific cod and Atka mackerel, and for its populations of marine birds and mammals. During 2001 and 2002, there were two expeditions that investigated the oceanography of the eastern and central Aleutian Islands, with studies of physical oceanography, nutrients and production, zooplankton and marine birds and mammals. In addition, there have been a number of studies of the paleo-ecology of the region based on the remains in middens of the bones of fish, marine mammals and seabirds. Both in paleo records and in the recent work, there is evidence of a gradient in primary production from east to west. There is also a sharp break in the physical system (temperature, salinity and nutrients) at Samalga Pass, the last pass through which Alaska Coastal water passes. At this same pass, there are remarkably sharp changes in zooplankton species composition, fish species composition and in the types of marine birds and mammals that are dominant. Thus there appears to be a clear linkage from physics, to nutrients, to production and ecosystem structure. This present-day spatial structuring of the system is echoed in the paleo-record. We will explore the ties of these patterns and processes to atmospheric forcing and the mechanisms whereby shifts in climate could alter the functioning of this system, perhaps differentially in the eastern and western Aleutians.

This symposium will cover a very broad range of topics from regional climatology through physics, nutrients, production, zooplankton, fish, birds and mammals, and human uses, at least in an archeological sense. We have agreement for presentation of 8-10 talks at present, and we would expect that, particularly from the paleo community, we would get several additional talks. We have yet to decide on an invited speaker, but a time slot for an invited speaker (30 min) plus about 12 to 14 others would be excellent.